

**A NEW SPECIES OF *PIGRITIA* CLEMENS (LEPIDOPTERA:
GELECHIOIDEA: COLEOPHORIDAE) FROM COSTA RICA**

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Abstract.—*Pigritia marjoriella*, n. sp., is described from localities along the northwestern coast and Cordillero de Guanacaste, Costa Rica. A photograph of the imago and illustrations of wing venation and male and female genitalia are provided.

Key Words: Lepidoptera, Gelechioidea, Blastobasini, *Pigritia*, Guanacaste, Costa Rica

The Blastobasinae are generally small to medium sized, narrow-winged moths, with less than 150 species described worldwide. This number, however, greatly underestimates the species richness of the group, as there are hundreds of undescribed species, especially from the Neotropics, represented in museum collections throughout the world.

Through the efforts of “parataxonomists” associated with Instituto Nacional de Biodiversidad (INBio), Santo Domingo, Costa Rica, a large number of specimens of Costa Rican Blastobasinae has accumulated in recent years. The purpose of this paper is to describe *Pigritia marjoriella*, new species, based upon the material deposited in INBio. This represents the first of several studies by the author devoted to the Blastobasinae of Costa Rica.

Meyrick (1894) was the first to recognize the Blastobasinae as a monophyletic group. Recent studies by Adamski and Brown (1989) and Hodges (in press) have corroborated this notion and have established monophyletic groupings at the generic and familial levels within the Blastobasinae and Gelechioidea, respectively.

Kornerup and Wanscher (1978) is used as a color standard for the description of the

adult vestiture. Genitalia were dissected as described by Clarke (1941), except mercurochrome and chlorazol black were used as stains. Pinned specimens and genital preparations were examined with dissecting and compound microscopes. Measurements of wings and genitalia were made using a calibrated ocular micrometer.

Pigritia marjoriella Adamski,
new species
(Figs. 1–4)

Diagnosis.—Male with spatulate uncus; gnathos with two rounded dorsal lobes; elongate part of lower portion of valva slightly dilated apically, forming a bifurcate apex; female with microtriciate membrane surrounding ostium, dorsolateral portion of membrane with a slightly sclerotized semi-circular depression; seventh sternum darkly pigmented on posterior half, except for a narrow area along median longitudinal axis; corpus bursae with three signa, one horn-like, and an opposable platelike pair.

Description.—*Head:* Vertex and frontoclypeus with mostly grayish-brown scales tipped with pale grayish brown; clypeus paler than vertex; labial palpus diminutive in male, appressed against frontoclypeus, extending to near horizontal midline of

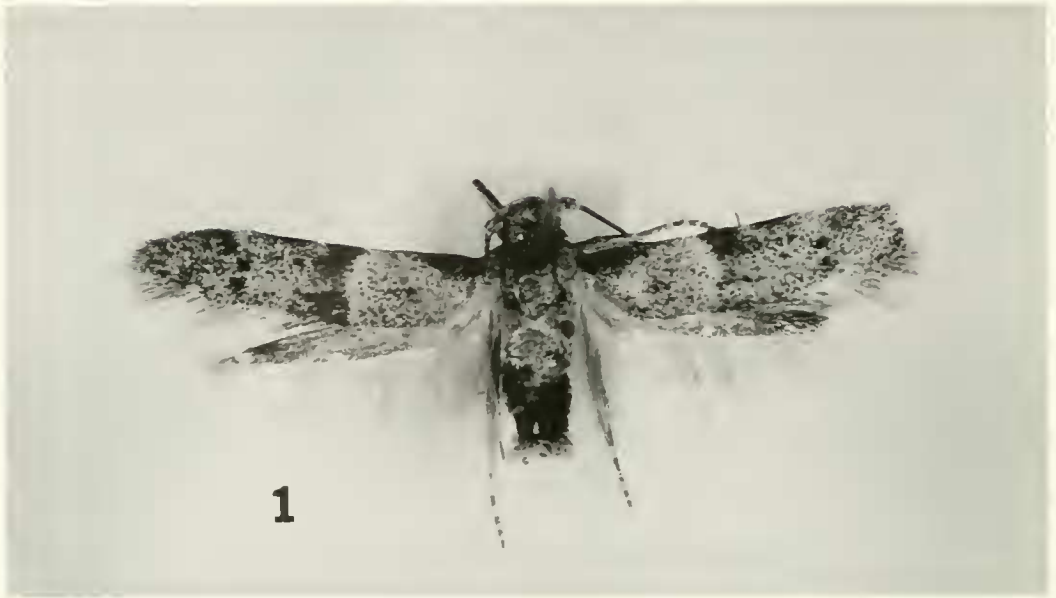


Fig. 1. Holotype of *Pigritia marjoriella*.

frontoclypeus; labial palpus in female nearly porrect, extending to vertex between antennae; outer surface of male labial palpus grayish brown with a few pale grayish-brown scales near apex, inner surface of labial palpus with a longitudinal depression; outer surface of female labial palpus mostly grayish brown intermixed with pale grayish-brown and white scales, apical and subapical areas with pale grayish-brown scales intermixed with white scales; inner surface similarly patterned, but paler; antennal pedicel and scape mostly grayish brown intermixed with pale grayish-brown and white scales, pedicel with mostly white scales aligned adjacent to bases of pecten; flagellum uniformly grayish brown; proboscis mostly white intermixed with few pale grayish-brown scales.

Thorax: Tegula and mesoscutum mostly grayish brown intermixed with pale grayish-brown scales, basal third paler than distal two-thirds; upper surface of legs mostly grayish brown intermixed with pale grayish-brown scales, apical and subapical areas of leg segments and tarsomeres (including midtibial scale tuft on metathoracic leg)

pale grayish brown intermixed with white scales; ventral surface of legs white intermixed with few contrasting scales; forewing (Figs. 1, 2), length 5.1–8.0 mm ($n = 376$), mostly pale grayish-brown and white scales intermixed with grayish-brown scales; median fascia present, incomplete, or absent; median fascia grayish brown; a pair of grayish brown spots near distal margin of discal cell; midcell spot absent (present in many *Blastobasinae*); inner and outer fringe mostly grayish brown tipped with pale grayish brown, undersurface uniformly grayish brown; venation (Fig. 2) CuA_2 nearly perpendicular to (or slightly angled as CuA_1) cubitus of cell; hindwing with both surfaces uniform pale grayish brown, M_2 and M_3 fused along entire length (Fig. 2).

Abdomen: Upper surface white, sterna mostly white, intermixed with brown scales.

Male genitalia (Fig. 3): Uncus spatulate, apically emarginate; uncus setose on ventral surface, all setae aligned diagonally from midline; gnathos with two rounded apical lobes, slightly sclerotized at base; elongate

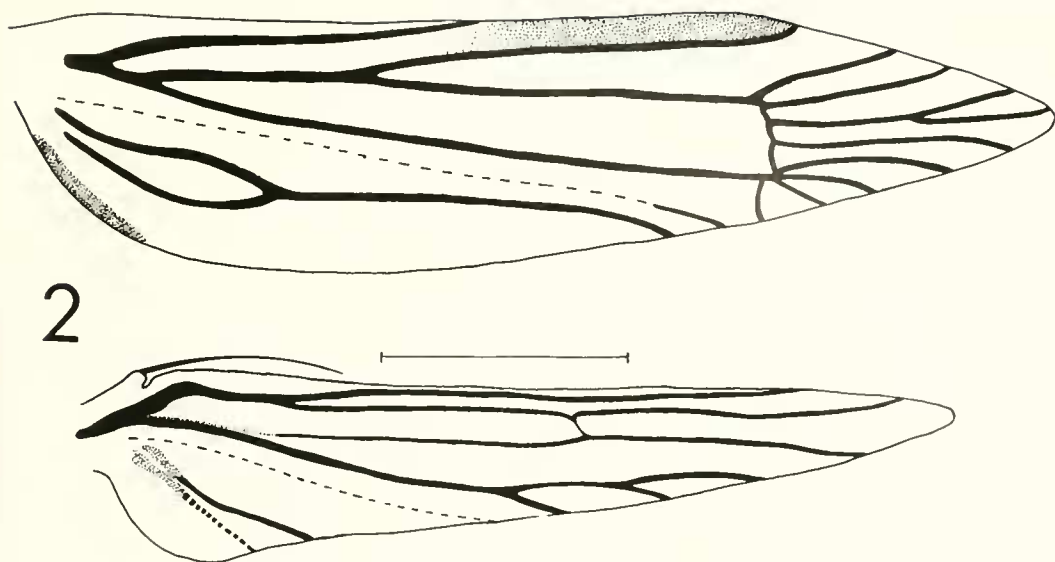


Fig. 2. Wing venation of *Pigritia marjoriella*. Scale line = 1.0 mm.

part of lower portion of valva slightly dilated apically, forming a bifurcate apex; proximal flange elliptical, with dense surface microtrichia, one setal cluster near distal margin and several setae along ventral margin; aedeagus with several stout anellar setae.

Female genitalia (Fig. 4): Ovipositor telescopic, in four membranous divisions posterior to eighth segment; ostium within membranous area posterior to seventh segment; membrane with dense microtrichia, dorsolateral portion of membrane with slightly sclerotized semicircular depression; seventh sternum darkly pigmented on posterior half, except for a narrow area along median longitudinal axis; inception of ductus seminalis proximal to ostium; ductus bursae slightly wider anteriorly than posteriorly, with rows of internal plates anteriorly; corpus bursae with three signa, one hornlike, and an opposable platelike pair.

Holotype.—♂, "Est.[ación] Murciélago, 8 km SO. de Cuajiniquil, P.N. Guanacaste, Prov[incia] Guanacaste, COSTA RICA, 100m. 6–24 Ene 1994, LN 320300–347200, #2557," "COSTA RICA, INBio,

CR1001, 817543" [Bar code label]. Holotype not dissected. Deposited in the entomology museum at Instituto Nacional de Biodiversidad, Santo Domingo, Heredia, Costa Rica.

Paratypes.—375 paratypes: 5 ♂, 4 ♀ with the following data, "F[in]ca Jenny 30 km N de Liberia, P.N. Guanacaste, Prov. Guan., COSTA RICA, Mar. 1991. R. Espinosa. L-N-316200, 364400." One dissected male with the following label data, "INBio, Genitalia Slide by D. Adamski, No. 1, Sex: ♂" [yellow label]; 45 ♂, 20 ♀ with the above data, except, "Abr.," two dissected females with the following label data, "INBio, Genitalia Slide by D. Adamski No. 6, Sex: ♀" [yellow label], "INBio, Wing Slide by D. Adamski No. 73, Sex: ♀" [yellow label]; 21 ♂, 5 ♀ with the above data except, "May"; one dissected female with the following label data, "INBio, Genitalia Slide by D. Adamski, No. 5, Sex: ♀" [yellow label]; 60 ♂, 11 ♀ with the following data, except, "Jun.," one dissected female with the following label data, "INBio, Genitalia Slide by D. Adamski No. 3, Sex: ♀" [yellow label]; 42 ♂,

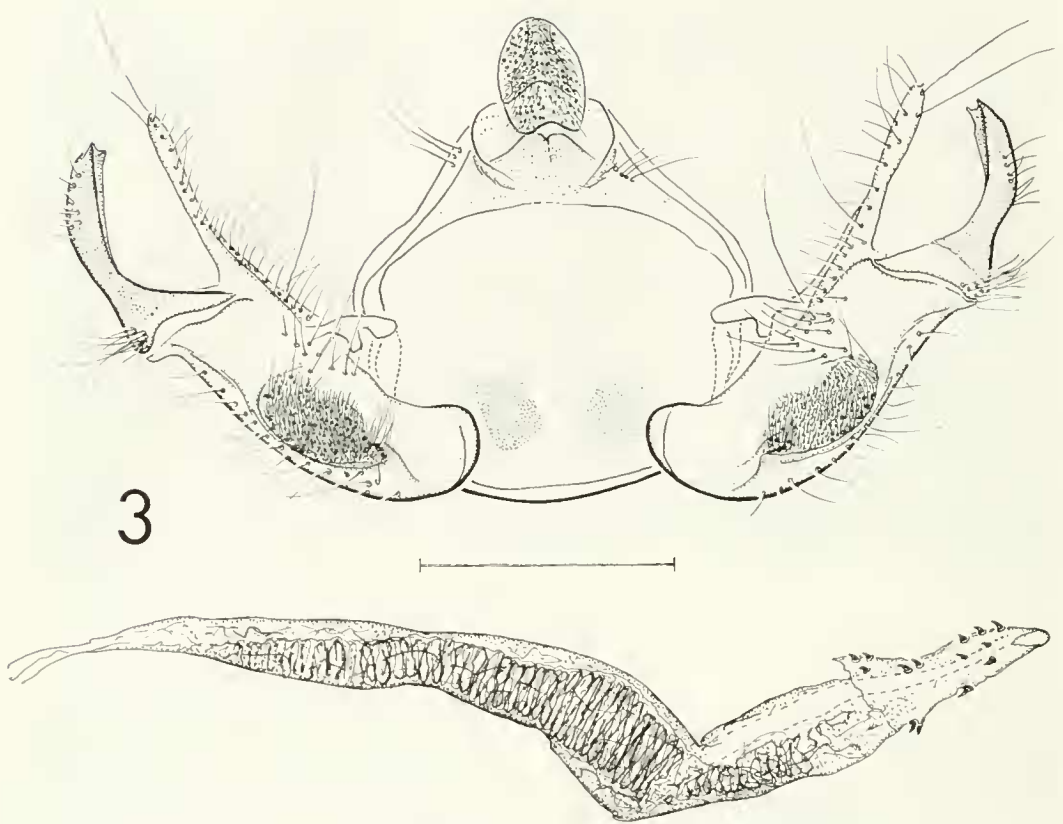


Fig. 3. Male genitalia of *Pigritia marjoriella*. Genital capsule above, aedeagus below. Scale line = 0.5 mm.

8 ♀ with the above data except, "Jul." one dissected female with the following label data, "INBio, Genitalia Slide by D. Adamski No. 4, Sex: ♀" [yellow label]; 24 ♂, 3 ♀ with the above label data except, "Ago."; 13 ♂, 2 ♀ with the following label data, "Finca Jenny, 30 km N de Liberia, P.N. Guanacaste, Prov. Guana., COSTA RICA, LN 316200-364400 #1678"; 2 ♂ with the above data except, "F[in]ca"; 10 ♂, 5 ♀ with the following label data, "Fca. Jenny, 30 km N de Liberia, P.N. Guanacaste, Prov. Guan. COSTA RICA, E. Araya, May 1991, L-N 316200, 364400"; 3 ♂, 1 ♀ with the above label data except, "E. Araya & R. Espinosa," and "Ago 1990"; 11 ♂ with the above label data except, "Set," one dissected male with the following label data,

"INBio, Wing Slide by D. Adamski No. 72, Sex: ♂" [yellow label]; 2 ♂ with the above label data except, "Oct"; 2 ♂ with the above label data except, "Finca," "240 m, 6-13 Set., 1994, E. Arayat," "# 3223"; 4 ♂, 2 ♀ with the following label data, "Est. Murciélago, 8 km SO. de Cuajiniquil, P.N. Guanacaste, Prov. Guana., COSTA RICA, 100 m. 6-24 Ene 1994, C. Cano, LN 320300-347200, # 2557"; 2 ♂, 1 ♀ with the above data except, "F. A. Quesada," "# 2556"; 2 ♂ with the above label data except, "9 Feb.," "# 2650"; 1 ♂ with the above label data except, "Mar 1994," "# 2794"; 2 ♂, 1 ♀ with the above label data except, "7-25 Abr.," "C. Cano", "# 2808"; 1 ♂, 1 ♀ with the above label data except, "I. Curso, Microlepidop., Jul 1990"; 2 ♂ with the following

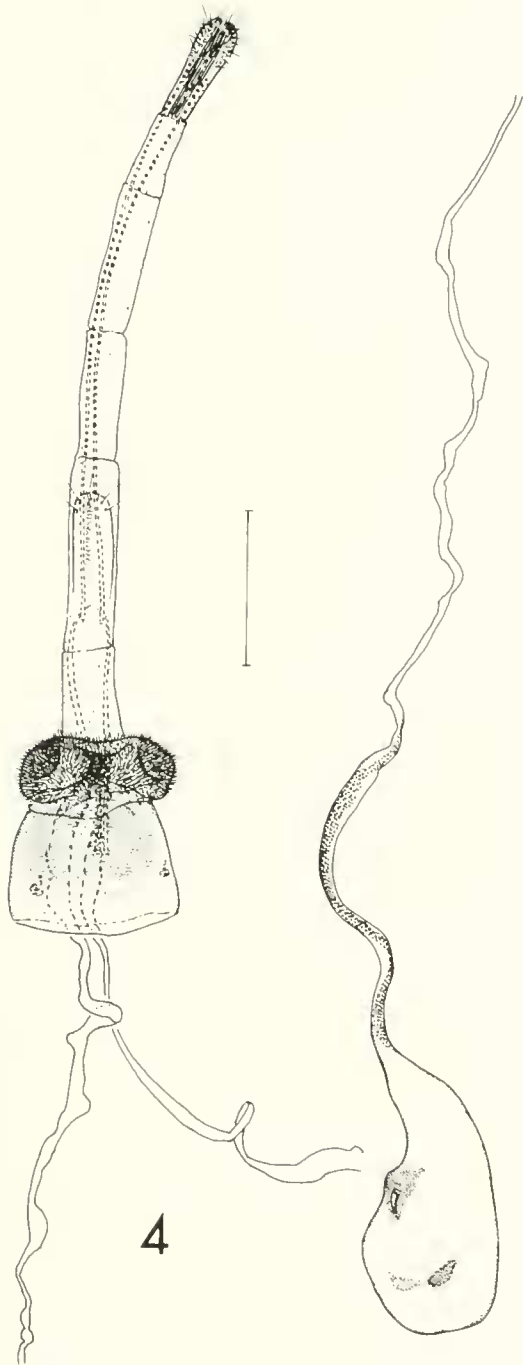


Fig. 4. Female genitalia of *Pigritia marjoriella*. Scale line = 1.0 mm.

data, "Est. Cacao, 1000–1400 m, lado SO Vol. Cacao Prov. Guan. COSTA RICA, C. Chaves, Mar. 1991, L-N 323300, 375700"; 8 ♂ with the above label data except, "Abr."; 1 ♂ with the above data except, "May"; 3 ♂ with the above data except, "C. Cano," "21 a 29 May 1992"; 1 ♂ with the above label data except, "C. Moraga, P. Rios, 21 a 29 May 1992"; 1 ♂ with the above label data except, "K. Taylor, 21 a 29 May, 1992"; 1 ♂ with the above label data except, "21 a 29 May 1992, D. Garcia"; 1 ♂ with the above label data except, "D. Garcia, Jun–Jul 1991"; 1 ♂ with the above data except, "C. Chaves, Jun 1991"; 1 ♂ with the above label data except, "Il curso Parataxon., Jun 1990"; 1 ♂ with the above label data except, "C. Chaves, Set 1991"; 2 ♂ with the above label data except, "8–12 Oct 1991"; 8 ♂ with the above label data except, "23 Oct.–9 Nov."; 5 ♂, 1 ♀ with the following label data, "Playa Naranjo, P.N. Sta. Rosa, Prov. Guan. COSTA RICA, E. Alcazar, May 1991, L-N-309300–354200"; 3 ♂ with the following label data, "Cerro El Hacha, 300 m, 12 km SE de La Cruz, Prov. Guanacaste, COSTA RICA, 25 Jun 1992, III curso Parataxon. L-N 329200–368000"; 2 ♂ with the following label data, "Agua Buena, P.N. Guanacaste, Prov. Guana. COSTA RICA, 200 m 7–12 Feb 1994, E. López, L-N 334800–364100, # 2692"; 1 ♀ with the following label data, "Agua Buena, 220 m, P.N. Guanacaste, Prov. Guanacaste, COSTA RICA, Jun 1992, III curso Parataxon. L-N 334800–364100"; 2 ♂ with the following label data, "Vicinity Estac. Murcielago, 8 km SW Cuajiniquil, Guanacaste Prov. COSTA RICA, 100 m Jun 1989, GNP Biodiversity Survey L-N 320300–380200"; 2 ♂ with the following label data, "Est. Sta. Rosa, 300 m, P.N. Sta. Rosa, Prov. Guanacaste, COSTA RICA, 3 a 12 Jun 1992, III curso Parataxon. L-N 313000–359800"; 2 ♂ with the above label data except, "I curso Microlepidop. Jul 1990"; 1 ♂ with the following label data, "Est. Santa Rosa, Prov.

Guana. COSTA RICA, 300 m 25 Feb.–8 Mar. 1995, A. Picado, L-N 313300-359300, # 4546"; 1 ♂ with the following label data, "Est Santa Rosa, Prov. Guana. COSTA RICA, 300 m, 23 Feb.–7 Mar. 1995, F. Alvarado, L-N 313300-359300, # 4574"; 1 ♂ with the following label data, "Est. Las Pallas, P.N. Rincón de la Vieja, Prov. Guana. COSTA RICA, 800 m 21–25 Mar. 1993, D. Gracia, L-N 306300-388600, # 2765"; 1 ♀ with the above label data except, "10–13 Mar. 1994," "# 2767"; 1 ♂ with above label data except, "19 Jun–1 Jul 1993, K. E. Taylor," "# 2200"; 1 ♂ with the above label data except, "24 Nov a 26 ene 1993, J. Sihezlar, G. Rodriguez"; 1 ♂ with the above label data except, "9 a 25 Feb. 1993, D. Garcia"; 1 ♂ with the following label data, "Tierras Morenas, Prov. Guana. COSTA RICA, 685 m, Mar. 1994, G. Rodriguez, L-S 283950–424500, # 2762"; 1 ♂ with the following label data, "Est. Maritza, 600 m lado O Vol. Orosi, Prov. Guanacaste, COSTA RICA, M. Ortiz, 27 Feb.–10 Mar. 1992, L-N 326900–373000"; 1 ♂ with the following label data, "Est. Los Almendros, P.N. Guanacaste, Prov. Guana. COSTA RICA, 300 m, 5–10 Abr. 1994, E. López, L-N 334800–369800, # 2830," "INBio, Genitalia Slide by D. Adamski, No. 2, Sex: ♂" [yellow label]. Two paratypes deposited in The Natural History Museum, London, England; ten paratypes in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.; all other paratypes are in Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica.

Remarks.—*Pigritia marjoriella* probably is most closely related to *P. astuta* Meyrick than to other known species in the genus. Males of *P. astuta* have a more developed proximal flange and a reduced uncus; females of both species share the presence of dense surface microtrichia on the membrane surrounding the ostium. The presence of the spatulate uncus in the male and the trisignate corpus bursae in the female of *P.*

marjoriella remains problematical in hypothesizing relationships among *Pigritia*. Moreover, *P. marjoriella* is the only blastobasine with a well developed (not reduced) uncus and bifurcate apex of elongate part of lower portion of valva.

Etymology.—This species is named in honor of Marjorie Morales Acosta, whom I met during my first visit to Instituto Nacional de Biodiversidad in Santo Domingo, Costa Rica. She has given me an opportunity to acquire a unique insight into the cultural aspects of a great people.

Discussion.—Adamski and Brown (1989) provided a phylogenetic classification for the North American Blastobasinae that included evidence for the monophyly of *Pigritia* Clemens. Although their evidence was based primarily upon genitalic characters, the strong dimorphism in the size of the labial palpi of *P. marjoriella* is shared with *P. fiddella* Dietz from North America. Other *Pigritia* species also exhibit sexual dimorphism in palpal size. Whether this feature evolved independently or is homologous (represents a synapomorphy) for two or more species can only be tested by phylogenetic analysis.

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LITERATURE CITED

- Adamski, D. and R. L. Brown. 1989. Morphology and Systematics of North American Blastobasidae (Lepidoptera: Gelechioidea). Mississippi Agricultural Forest Experiment Station Technical Bulletin 165 (Mississippi Entomological Museum No. 1), 70 pp.
- Clarke, J. F. G. 1941. The preparation of slides of the genitalia of Lepidoptera. Bulletin of the Brooklyn Entomological Society 36: 149-161.
- Hodges, R. W. In press. Gelechioidea. In Kristensen, N. P., ed., Handbuch der Zoologie.
- Kornerup, A. and J. H. Wanscher. 1978. Methuen Handbook of Colour. 2nd ed. Methuen and Co., Ltd., London. 243 pp.
- Meyrick, E. 1894. On a collection of Lepidoptera from upper Burma. Transactions of the Entomological Society of London 1894, pp. 1-29.